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ABSTRACT

This manual of operative training guidelines for fork lift truck driving has been developed by the Ceramics, Glass and Mineral Products Industry Training Board (Great Britain) in consultation with a number of firms which manufacture fork lift trucks or which already have training--programs for their use. The purpose of the guidelines is to assist each industrial firm to prepare its own programs of systematic training, by providing a framework which covers basic training of new drivers, a refresher course emphasizing safety aspects, and a safety code supplementary to both the basic and the refresher courses, with supporting visual aids. The manual outlines suggested practice sessions, provides safety quizzes and examinations, and includes line drawings of safe operating procedures. It also lists sources of film strips for training programs. (MF)

AC008116

Ceramics Glass and Mineral Products Industry Training Board

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Training Guidelines

Fork Lift Truck Driving

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OPERATIVE TRAINING GUIDELINES–FORK LIFT TRUCK DRIVING

INTRODUCTION

The operative working party established by the Board's industrial committee for the bricks and refractories industries agreed upon these guidelines after consultation with a number of leading fork lift truck manufacturers and firms already undertaking such training. Opinion was also sought of the National Federation of Clay Industries whose Accident Prevention Committee originated the safety code which is included.

Whilst the programme has been tried and tested, the syllabus is not meant to be followed rigidly by all employers. The intention is that it should be used as a guide to initiating individual training programmes based on participants' individual circumstances, (i.e. whether on or off the job training is possible). Because of this, specific time allocation to subject matter is not given. If, however, a systematic approach of the type advocated is adopted, it would naturally lead to a reduction of the learning time needed to reach experienced workers' standard.

In using these specific guidelines, firms are recommended also to refer to the Board's Recommendations for Training Operatives.

PURPOSE

The purpose of these guidelines is to assist each establishment to prepare its own programme of systematic training by providing a framework couched in specific terms and covering:

(a) a basis for training of new drivers
(b) a refresher course, heavily emphasising safety aspects for new and established drivers
(c) a safety code supplementary to both categories, with supporting visual aids.

FORMAT

The framework is presented as follows:

Part A.

Basic Training–covering a cross-section of the activity elements, knowledge and skills relating to fork lift truck driving, as a guide to systematic instruction.

Part B.

Refresher Course–emphasising key points and safety for established drivers, including written and oral test questions together with an outline of practical tests also appropriate to the basic training.

Part C.

Appendices

(i) N.F.C.I. Safety Code for drivers of industrial trucks.
(ii) A specimen driving certificate, which has been found useful for establishing standards.
(iii) List of visual aids.

APPLICATION

A training programme would normally consist either of the basic training only, or of the basic plus items selected from the appendices, as best meets current or anticipated manpower and skills requirements.

The Industry Training Board has already defined the conditions which must be satisfied if training is to rank for grant. Any training process which satisfies these conditions–whether or not it draws upon these guidelines–will so rank.

If, by providing a starting point, these guidelines simplify the process of preparing carefully considered, effective and properly documented operative training procedures they will serve their purpose.

ACKNOWLEDGEMENTS

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PART A–OPERATIVE TRAINING–MODEL PROGRAMME, FORK LIFT TRUCK DRIVING.

Session 1. Introduction

1. **Discuss length and content of training programme**

2. **Describe and show trainees the various types of truck in use**

   (a) Rated lifting capacity of each and where it is marked.
   (b) Their length and breadth and weight.
   (c) Turning radii.
   (d) Method of powering and general mechanical operation.
   (e) Front wheel drive (rear wheel steering).
   (f) Uses in the factory.
   (g) Their cost.
   (h) Method of changing batteries.
   (i) Noises symptomatic of impending breakdown.

3. **Discuss basic safety aspects**

   (a) Fire drill, e.g. truck to be driven slowly into the open unless driver in danger; types of extinguisher, where located and how to use them; phone number of internal and external fire brigade.
   (b) Checking or changing batteries or refuelling–no naked flames or lighted cigarettes. After refuelling wipe away spillage, replace filler cap and ensure evaporation of vapour before starting up.
   (c) Rules of the road, e.g. speed limits, warning notices, particularly hazardous areas.
   (d) Accident reporting.
   (e) Typical accidents, why they occurred and how they could have been avoided.
   (f) The fulcrum principle on which truck works–the dangers of overloading and of using rear end ballast of any kind. The other factors which determine lifting capacity–tyre capacity, axle strength, etc. The effect of adding or subtracting any attachment or accessory.
   (g) The danger of carrying passengers.
   (h) The importance of the driver keeping within limits of truck bodywork and away from lifting masts.
   (i) The truck's capacity for travelling as quickly backwards as forwards.
   (j) The importance of travelling at a speed consistent with conditions e.g. congested, wet or slippery, over bridge plates.
   (k) The underclearance of the truck.
   (l) The danger of fumes and gases accumulating e.g. hydrogen during battery recharge.
   (m) The fork's ability to operate (lower) without engine or motor being switched on.

4. **Describe pre-starting up checks and method of reporting defects**

   (a) Battery connections, if any.
   (b) Electrolyte level in batteries.
   (c) Brakes.
   (d) Tyre pressures.
   (e) Grit, oil or other foreign bodies on tyres.
   (f) Oil and water levels.
   (g) Check for oil and water leaks.
   (h) Warning devices and mirrors.

(i) Excessive arcing on controllers of electric trucks.
(j) Forks–cracks and other damage.
(k) Chains, cables and limit switches where fitted.
(l) Transmission and steering.
(m) Check condition of battery, or fuel in tank.

5. **Describe and demonstrate starting-up procedure ***

(a) Gear lever or directional control lever in neutral.
(b) The use of ignition key. Choke controls and warming up if necessary.
(c) Function of ignition warning light.
(d) Automatic cut out in seat linkage, if any.

6. **Describe and demonstrate use of other controls ***

(a) Steering wheel and knob on rim. Truck is steered by rear wheels. Marked differences between front wheel and rear wheel steering.
(b) Handbrake.
(c) Footbrake.
(d) Gear lever or directional control lever.
(e) Clutch.
(f) Hydraulic lift control.
(g) Side shift control.
(h) Clamp control.
(i) Accelerator pedal.

7. **Describe and demonstrate procedure for leaving truck**

(a) Lower forks fully and tip forward so that full length of forks rest on the ground.
(b) Withdraw ignition key or starter circuit key.
(c) Apply handbrake.
(d) Chock wheels if necessary.
(e) Ensure vehicle is not causing an obstruction.

8. **Trainee practises items 4 to 7 until proficient**

*If trainee cannot already drive a motor vehicle a considerable time will have to be spent on these items.

Session 2. **Operation 1–Driving**

1. **Describe and demonstrate moving off in forward and reverse gears & stopping**

(a) Raise forks to just above ground level (6 to 8 inches).
(b) Check that it is safe to move off then proceed slowly in lowest gear always looking in direction of travel.

(c) Check to ensure other trucks not overtaking.
(d) Beware of narrow aisles, railway trucks, pedestrians, holes and obstructions on the roadway. Steering can react violently if driven over holes or objects.
(e) Stop truck before reversing from forward gear and vice versa.
(f) Drive three truck lengths behind other trucks.
(g) Apply footbrake gradually.
(h) Avoid steering when truck is standing still.
(i) Feet must not rest on clutch or footbrake when travelling.

2. **Trainee practises moving truck forward and backward in a straight line until proficient**

3. **Demonstrate method of turning when in forward gear and when (then) in reverse gear**

(a) Avoid quick turns and sharp cornering.
(b) Allow for tail swing resulting from rear wheel steering when driving forward and for swing of forks when driving in reverse.

4. **Trainee practises turning in forward and reverse gears**

Session 3. **Operation II–The empty pallet**

1. **Summarise work covered in Sessions 1 and 2 and ascertain what has been learned.** Revise as necessary

2. **Discuss different kinds of pallet. Their construction and uses**

3. **Demonstrate method and stress importance of spreading forks for different types of load**

4. **Demonstrate method of approaching pallet and of lifting, tilting and lowering**

(a) Approach pallet squarely and slowly.
(b) Insert forks cleanly and fully, ensuring that any fork projection beyond does not engage the pallet behind.
(c) Lift pallet 6 to 8 inches with the fork square and then tilt back.
(d) Carry pallet as near to ground as possible.
(e) Lower pallet with mast in a vertical position.
(f) Lower forks slightly until free of top and bottom bearers, look back and if road is clear, reverse truck out.

5. **Demonstrate use of side shift (and/or clamp) control**

6. **Trainee to practise 3, 4 and 5 until proficient**

Operation III–The loaded pallet

1. **Demonstrate difference between a safe load and an unsafe load**

2. **Discuss method of assessing weight of pallet loads of different types of brick**

3. **Demonstrate lifting and lowering and moving with loaded pallet**

(a) Tilt load against fork carriage when travelling; keep mast at maximum rear tilt (dependent on type of load).
(b) Tilt forks fully backwards before ascending or descending gradient (dependent on type of load).
(c) Travel slowly in forward gear when ascending gradients.
(d) Travel slowly in reverse gear when descending gradients. Truck must not turn on gradients.
(e) Ensure floor is secure and can bear the weight of truck, especially where bridge plates are in use. Ensure bridge plates secure.
(f) Avoid travelling on soft ground.
(g) Depress footbrake when loads are being lowered or elevated.
(h) Travel in reverse if load obscures front vision.
(i) Determine if load is projecting beyond fork ends or if fork ends project beyond load and make necessary allowances.

4. **Demonstrate use of side shift with loaded pallet**

5. **Trainee to practise**

(a) Assessing weights of different loads until proficient.
(b) Lifting, lowering and moving with loaded pallet until proficient.
(c) Use of side shift until proficient.

6. **Demonstrate method of turning when moving forwards and backwards with a loaded pallet**

7. **Trainee to practise '6' until proficient**

8. **Demonstrate method of driving through doorways or round blind corners or intersections, with loaded pallet**

(a) Slow down.
(b) Sound horn intermittently.
(c) Keep to own side.

9. **Trainee to practise '8' until proficient**

Session 4. **Revision of training carried out on Sessions 1, 2 and 3**

Session 5. **Operation IV–Stacking**

1. **Demonstrate method of positioning loaded pallets side by side**

(a) Ensure load square and bonded.
(b) Assess work area before proceeding.
(c) Watch for changes in intensity of illumination.
(d) Do not butt adjacent pallets.

2. **Demonstrate method of tiering or stacking loaded pallets**

(a) Approach stack with load low and tilted fully backwards (dependent on load being carried).

(b) Slow down and stop at face of stack.
(c) Raise load still at backward tilt to desired stacking height (dependent on load being carried).
(d) Move slowly forward when load is clear of top of stack.
(e) Bring mast to vertical position when load is over stack and lower onto stack.
(f) Lower forks until free of pallet, look back to see that road is clear and withdraw by reversing truck (forward tilt may be necessary to extract forks).
(g) When clear of stack lower forks to just above ground level.
(h) Do not tilt mast forward past vertical when load is fully elevated.
(i) Do not bump adjacent stacks.
(j) Do not stop suddenly when carrying load.
(k) Ensure you have sufficient overhead clearance.
(l) Ascertain safe heights of stacks of various types.
(m) Look for features of an unsafe stack before depositing load.
(n) Do not stack material in front of fire doors, exits or designated areas.

3. **Trainee practises '2' with empty pallets and then with loaded pallets until proficient**

Session 6. Operation IV (A)–Stacking

1. **Practise stacking to build up skill**

2. **Revise all safety aspects. Discuss additional safety points as follows**

(a) Keep away from edge of banks.
(b) Park at least 8 ft. from railway lines.
(c) Stop, look and listen at railway tracks.
(d) Cross railway lines slowly and diagonally.
(e) Do not run truck onto an elevator or lift unless authorised to do so. Make certain elevator or lift will bear the weight of truck and load.
(f) Ensure no one walks or stands under elevated forks whether loaded or not.
(g) Never use a fork lift to tow railway cars or wagons.
(h) Do not push with bare forks.
(i) Use fork extensions to handle loads which cannot be handled on standard length forks.
(j) Make sure load does not exceed truck's capacity (truck can be overloaded without the load exceeding the normal load rating if load centre is extended more than that at which truck is rated).
(k) Use load backrest for extra high loads.
(l) Use canopy guard wherever it is available (should be a standard fitting).
(m) Check floors of trucks and railway wagons before entering.
(n) Stress importance of good housekeeping i.e. neat and tidy stacks.

Session 7. Operation V–Loading and unloading lorries and trailers

1. **Demonstrate method of loading lorry or trailer**

(a) Approach at an angle.
(b) Swing in the loaded pallet.
(c) Place on lorry so that pallet is tight against adjacent one.
(d) Load pallets to each side of lorry alternately.

(e) Avoid striking side of lorry or trailer.
(f) Leave enough space to extract forks.

2. **Demonstrate method of unloading lorry or trailer**

(a) Inspect load before unloading to make sure it is safe.
(b) Ensure that nobody is within range of a falling load.
(c) Approach at the reverse angle to 1 (a) above.
(d) Swing loaded pallet away from adjacent one.
(e) Determine whether containers are full or empty—empty ones are less stable and require careful handling.

3. **Trainee practises '1' and '2' until proficient**

Session 8. **Operation VI—Handling non-palletised loads**

1. **Demonstrate handling of**
(a) round objects
(b) drums or barrels or similar objects which have lips or ridges
(c) packing cases
(d) other loads.

2. **Trainee practises until proficient**

Operation VII—Handling with attachments

1. **Demonstrate handling** with crane jibs, tineforks, brick clamps etc. if attachments fitted.

2. **Make trainees aware of danger** of swinging load with crane jibs and the necessity to lift reduced loads (needs only to be dealt with if an interchange from forks to attachments is part of the operation.

3. **Trainee practises until proficient**

Session 9. **All parts are revised and practised in real work situations in area where trainee will be employed**

Session 10. **Tour of factory to spot hazards regarding truck driving**

Note
1. Intermittent follow-up is carried out by instructor for a period of 4 weeks.
2. With regard to handling methods, it has been suggested that the handling of bricks by special air bag tines should be covered by this training programme. It requires a high degree of skill on the part of the operators owing to the extremely small apertures which the tines have to enter and, of course, the waiting time whilst the bags are inflated before the load can be lifted and moved.

PART B–REFRESHER COURSE, EMPHASISING KEY POINTS AND SAFETY, FOR ESTABLISHED OPERATORS.

INTRODUCTION

This course is appropriate for fork lift truck drivers who have already undertaken approved driving instruction.

Its object is to provide those drivers with a short refresher course in safe working and efficient operating techniques.

It is suggested that a driving licence system (elaborated below) might be operated within the establishment, under which internal driving licences would be issued only to those who successfully undertook the tests described in this booklet.

The tests are based on:

(a) correct driving techniques–as judged on a practical test course, and

(b) a sound knowledge of safe working procedures.

This course includes the use of a suitable film concerned with fork lift truck operation. Several such films are available. Those who prepared this booklet used a film entitled "Forked Lightning" which is available from the Conveyancer Fork-Trucks Limited, Liverpool Road, Warrington, Lancs.

It is assumed that all drivers have been–or will be–issued with a copy of the "Safety Code for Drivers of Industrial Trucks" prepared by the N.F.C.I.

It is imperative that all internal transport drivers should take pride in operating their trucks with skill and safety, fully recognising that the smooth flow of production, the service life of the truck itself (a very expensive piece of equipment) and the accident free use of a potentially dangerous vehicle, depend upon their competency as drivers.

INTERNAL TRANSPORT LICENSING SYSTEM

The suggested procedure is that a driving licence signed by the holder and countersigned on behalf of the Company, might be issued to all authorised drivers of industrial trucks. The licence would contain a brief summary of the major operating rules and indicate the classes of industrial truck which may be driven by the individual concerned.

Supervisory staff, themselves trained to drive industrial trucks, would be issued with a similar licence, preferably distinguished by colour. If an employee is temporarily authorised to drive an industrial truck the authorising foreman signifies that approval has been given by transferring–for the time being–his own driving licence to that employee.

It follows that any industrial truck driver–on challenge–should be able to produce a driving licence, and that temporary drivers are readily identifiable with the foreman who authorised their activity.

Session 1

Preliminary Test Sheet A presents sixteen statements which members of the course should read carefully.

After deciding whether the statement is true or false the appropriate word should be circled in the column 'Before discussion'.

The sheet is retained by the candidate.

Example:

	Answer			
	Before discussion		After discussion	
1. In bright sunlight the driver should wear dark glasses.	True	False	True	False

On completion of the list the items will be discussed as per the discussion sheet B.

Preliminary Test, Sheet A (Circle the answer you think is right)

Question	Answer Before Film/Discussion		Answer After Film/Discussion	
1. If a load is out of line in storage, the best and quickest way to get it in place is to push it gently with the end of the forks.	True	False	True	False
2. It is not necessary for the driver to look in the direction of travel when backing up a few feet, where he knows he won't get into trouble.	True	False	True	False
3. When going up or down a ramp with a fork truck the driver should always carry the load on the up-hill side.	True	False	True	False
4. If you try to lift a load and it seems to be too heavy for your truck you should, for safety's sake, have someone stand on the rear of the truck to hold it down.	True	False	True	False
5. When travelling, empty forks should be carried between 2 in. and 6 in. from the floor.	True	False	True	False
6. Drivers should check bridge plates before driving on to them, even if they are put in place by experienced men.	True	False	True	False
7. When he parks his truck the driver should be sure the forks are resting on the floor.	True	False	True	False
8. When travelling, the load should be kept as nearly level as possible.	True	False	True	False
9. It is in order to raise a man with a fork truck if he is standing on a good solid pallet.	True	False	True	False
10. The responsibility for inspecting floors of vans for weak spots rests entirely with the loaders.	True	False	True	False
11. Drivers should not tamper with the adjustment of the spread between forks.	True	False	True	False

12. For safety, the driver should block the wheels of vans and lorries when loading, even if the hand brake of the lorry is set.	True	False	True	False
13. If mechanical trouble develops in your truck, you are responsible for making it last until the end of the shift, at which time it can be repaired.	True	False	True	False
14. If a load is too high to see over, you should look round it.	True	False	True	False
15. The correct distance between two trucks going in the same direction is at least two truck lengths.	True	False	True	False
16. The driver should always drive fast enough to keep up with the work to be done.	True	False	True	False

Discussion on Preliminary Test Sheet

The items are read out by the Instructor one by one.
The members are then asked to say if the statement is true or false.
Reasons are requested and the discussion should lead to the conclusions given on the Discussion Sheet B.
When agreement is reached the appropriate word (true or false) should be circled in the column "After Discussion".
This procedure will serve the double purpose of education in procedure and assisting the trainee to assess his previous knowledge.

Discussion on Preliminary Test, Sheet B

The procedure is that the training officer reads out the items one by one to the class. He then asks an individual (or the class) whether the statement is true or false. When agreement is reached, the correct answer is ringed round on the test sheet.

Answer	Reason
1. False	This is a very common cause of damage to materials and pallets. Drivers should never butt loads with forks, rear end of truck, or with uprights.
2. False	Many accidents are caused by drivers backing up for short distances (four or five feet) without looking. Reason–driver probably thinks he can't get into much trouble in a few feet.
3. True	If the load is carried on uphill side it will rest against uprights and won't spill. Also the centre of gravity is thrown towards the truck which reduces possibility of nosing forward and gives more braking traction on large wheels.
4. False	Picking up loads that are too heavy has caused serious accidents. If the load seems to be too heavy for your truck, ask for a heavier truck to handle it.
5. True	If empty forks are carried higher than six inches they may strike pedestrians or other drivers. If carried too close to floor, they will not clear rough spots or other obstructions.
6. True	Drivers should always personally examine bridge plates to be sure they are secure before driving onto them. Just because loaders are experienced is no guarantee bridge will be secure.
7. True	When parked, forks should rest on the floor so that pedestrians will not strike sharp edges or trip over them. While on the subject of parking, drivers must shut motor off when parked for long periods inside enclosed or semi-enclosed areas.
8. False	Load should be tilted back slightly so that it will rest against uprights or back rest.
9. False	Men should not be raised on pallets unless a safety pallet is used (that is one equipped with wood, rope or chain guard rails and which is securely fastened to forks) any more than they should work on a scaffold without guard rails.
10. False	Loaders may inspect floors but the driver should not take this for granted–he should inspect the floor himself. Reinforce any weak spots with steel plate. Never drive on to a road vehicle or trailer–danger of floor cave in. Other equipment is provided for difficult loading.
11. False	Drivers should adjust spread between forks for different width pallets. Forks should be towards outer battens and an equal distance from centre batten. If forks are too close to centre batten the load will be unstable.

12. True — Wheels of vans or lorries should always be blocked so that they will not roll away from building when being loaded. If van or lorry rolls away it may tip end-up causing a serious accident.

13. False — Mechanical trouble should be reported immediately. A small maintenance job may turn into a big one by the end of the shift.

14. False — It is impossible to see around both sides of a load which is too high to see over, drive in reverse.

15. False — The recommended safe minimum distance is three truck lengths. Driver must use own judgement with different driving conditions.

16. False — Driver should regulate speed according to driving conditions. Quick starting, jerky turns, speeding, cutting corners and "showing off" are bad practices.

Key Points to follow when driving, Sheet C. (Issued at end of first session)

1. Never butt loads with forks or uprights. This is a common cause of damage to materials and pallets.
2. Face direction of travel–even on short back-ups.
   Maybe a pedestrian or another truck has come up behind you.
3. On ramps, carry load upgrade side. Load will rest more securely–won't spill or "nose over" if you make a quick stop. Also gives better traction on large wheels for braking.
4. Never let another person stand on rear of truck to increase lifting capacity. People have been badly injured doing this. If the load is too heavy, get a heavier truck to do the job.
5. Carry empty forks between two and six inches from the floor.
   If carried any higher they may strike pedestrians or other drivers.
6. Inspect bridge plates before running onto them. It's your neck. Just because van loaders are experienced is no guarantee bridge plate will be secure.
7. When parked, rest forks on floor. Pedestrians will not strike sharp edges or trip over them. This includes you when you return to your truck.
8. Tilt load back slightly when carrying. It will then rest against backrest or uprights and be more secure in the event of a sudden stop.
9. Never raise anyone with fork truck unless on a safety pallet equipped with wood, rope or chain guard rails and securely fastened to the forks.
10. Inspect floors of vans and lorries before loading. Reinforce small weak spots with steel plate.
11. Adjust spread between forks for well-balanced load. Forks should be towards outer battens and equal distance from centre batten so that load won't become unstable.
12. Block wheels of vans and lorries before loading, so that truck will not roll away and tip end-up.
13. When a maintenance job is required report immediately. A £1 job may turn into a £10 job by the end of the shift.
14. If load is too high to see over, drive in reverse. Then you will have no blind corners.
15. Allow at least a three truck lengths interval between trucks travelling in the same direction. Allow more if necessary–depending on driving conditions.
16. Regulate speed to road conditions and type of load. Quick starting, jerky turns, other "show off" tactics, are bad practices.

Session 2

The session will open with a brief review of the previous meeting.

Safe loading

Safe loading of fork lift trucks will be the subject for discussion and demonstration.
For the demonstration, models of trucks and loads will be used as follows:

Demonstration 1.	The principle of correct balance.
Demonstration 2.	The effects of excess load.
Demonstration 3.	Incorrect position of load.
	Correct position of load.
Demonstration 4.	Load at proper height.
	Load too high or too low.
Demonstration 5.	Correct technique for sloping or uneven ground.

Safety quiz

For this session the Instructor will pose questions as per Sheet D and promote discussion aimed at the conclusions laid down there. It may be possible in this programme to take one or two questions from members for discussion.

Safety quiz, Sheet D

Q. In the event of an accident causing damage to the truck, what procedure do you follow?
A. Stop, bring the load to safe position, switch off, report immediately to foreman or supervisor.

Q. In the event of an accident resulting in injury to personnel, what procedure do you follow?
A. Stop, switch off, release injured person if trapped, send for medical aid, make person as comfortable as possible on the ground. Important–leave truck in exact position of accident.

Q. Which is more dangerous–driving into a building from bright sunlight or from a building into bright sunlight.
A. It is necessary to take care in both cases, but more so when driving from bright sunlight.

Q. What action should be taken before removing covers or cowlings from pedestrian-operated lift trucks?
A. Always switch off, remove fuse and disconnect charging cable (if in use).

Q. What is the safest method of immobilising a pedestrian-operated truck?
A. Rotate key anti-clockwise and remove it. In this condition the driving control can be operated but no drive will result.

Q. What action do you take if a load sticks in a power truck?
A. Get off machine (emphasise) and loosen it. Do not reach through the uprights to loosen it.

Q. What action do you take if mechanical or electrical trouble develops?
A. The trouble should be reported to the supervisor immediately. A small maintenance job may turn into a big one by the end of the shift.

Q. Is it safe to use reverse speed as a brake?
A. No. It does the truck a great deal of harm, particularly the transmission.

Q. Trucks should be maintained carefully to ensure that they are in a safe operating condition at all times. What equipment should be checked as a simple daily routine?
A. Tyres and tyre pressure, oil and water levels, brakes, batteries, warning devices–horns or bells, controllers on electric trucks, forks, chain, cables and limit switches where fitted, transmission and steering mechanisms. Trucks should always be kept clean and free of mud, oil, dust accumulations and electrolyte spillages in order to reduce fire hazards.

Fire hazards

1. A short explanation of the correct use of the extinguisher and the dangers attendant on incorrect use.

2. Demonstration of correct use and efficiency in putting out fire. The demonstration to be realistic and oil or petrol fire created for the purpose.
   Members of the course to be involved in this practice.

The importance of width of vision

A method of measuring a driver's range of vision in a side-ways direction (vital in fork lift truck driving) will be demonstrated and members tested by this method.

Key points to follow when driving, Sheet E (Issued at end of second session)

17. Drive at sensible speeds. Some examples of "cowboying" are–driving too fast for conditions, cutting corners, ramming loads, ramming doors, picking up empty pallets without stopping.
18. Allow no riders on your truck. Protect your fellow workers from injury.
19. Give pedestrians the right of way–give them warning. Use your horn sensibly–not unnecessarily.
20. Remove pieces of material from gangways. Report large obstructions to foreman.
21. Watch out for holes, pits and rough spots in floor. The wheel snap caused by hitting one can break your hand or wrist.
22. Stay away from edges of platforms and bridge plates (loading plates).
23. Do not park truck or leave loads in gangways or in front of fire fighting equipment. Apart from causing obstructions, it is a temptation to unauthorised persons to move the truck.
24. The safe way to enter a lift (if lifts are used in your factory) is
    (a) approach lift at right angles (head on)
    (b) halt at least five feet from gate
    (c) wait for lift operator's signal, then drive on
    (d) set brake and shut off motor
    (e) get off truck.
25. Do not drive too close to edge of gangways. Allow safe clearance between truck and equipment or workers along gangways.
26. Be sure loads are secure before moving them. If load is too heavy, loose or sloppy, have it corrected before moving it.
27. Don't try to pick up loads that are too heavy. With fork trucks, if rear wheels leave ground when you lift, do not move load. Use heavier truck for the job.
28. Some incorrect uses of power trucks: pushing or pulling another truck to start it, moving heavy objects with make-shift connections, lifting objects that are not supposed to be lifted with a truck, using the truck as a battering ram.
29. Keep your body inside running lines of truck.
30. Clean your truck daily.

31. Trucks should be maintained carefully to ensure that they are in a safe operating condition at all times. As a simple daily routine, check–

(a) tyres and pressures
(b) oil and water levels
(c) brakes
(d) batteries
(e) warning devices–horns or bells
(f) controllers on electric trucks
(g) forks
(h) chains, cables and limit switches where fitted
(i) transmission and steering mechanisms.

Trucks should always be kept clean and free of mud, oil, dust accumulations and electrolyte spillages in order to reduce fire hazards. Most manufacturers arrange for their trucks to be finished in an easily identifiable colour in order to give visual warning to people when the truck is in motion, so–keep your truck clean.

Session 3

Review of main points dealt with in first two sessions, Sheet F

Q. What are some of the points, already covered, that a driver can observe to keep damage of materials to a minimum?

A. (1) Not to use the side of vehicle as stopping buffer.
(2) Not to butt loads with forks or masts.
(3) Have unstable loads corrected before picking up.
(4) Avoid cutting corners, quick stops and starts, jerky turns.
(5) Any other points the group may put forward.

Q. How should you carry loads on ramps?
A. On the upgrade side.

Q. Why on the upgrade side?
A. The load rests against uprights or backrest more securely if a sudden stop is necessary. There is also better traction for stopping.

Q. Why should bridge plates be inspected before running on to them?
A. It must not be taken for granted that they are secure. It is important to be sure.

Q. What should a driver do before loading a vehicle?
A. Make sure the wheels are chocked, inspect the floor, make sure loaders are in a safe position clear of load in case the floor gives way.

Q. What should a driver do if he sees small pieces of scrap or wood in the gangways?
A. Get off truck and remove them. In the case of large obstructions or holes or rough spots in floor, report to foreman or safety representative.

Q. If the rear wheels of the truck lift when you try to pick up a load what should you do?
A. Do not try to move it. Get a heavier truck for the job.

Q. Describe some of the ways in which trucks can be misused.
A. Pushing or pulling other trucks, moving heavy objects with makeshift connections, lifting objects that truck is not built to handle, using truck as battering ram.

Discussion on film

(Note:
For convenience the discussion is here set out in the form of questions and answers, but in some instances the answer is demonstrated by the training officer).

Q. Of the practices we have seen in the film, which are the two or three that are most common in this factory?
A. Training officer lists on blackboard the practices which the group feels are most common. List should be restricted to about six items.

Q. What can we do to correct these bad practices?
A. Training officer leads group in discussion on ways to improve. Pattern of discussion will depend on blackboard list and local situation. Group is led to conclusion that bad driving practices are only habits–habits are hard to change but it can be done if drivers will substitute good habits in place of bad. Large part of answer is therefore in their hands as drivers. Encourage them to try to change whatever poor practices they have acquired.

Q. Besides taking it easy, what should you do about wet or greasy spots?
A, Wet or greasy spots should be reported to the foreman or safety representative for correction.

Q. Does a fork truck steer the same as a car? What does this mean to drivers?
A. No! The driver must therefore watch the rear end swing of his truck all the time.

Q. What is a good rule as far as speed is concerned?
A. Never hurry if it means damaging equipment or materials.

Q. What should a driver do when refuelling?
A. Shut off motor–wipe up spilled petrol or fuel oil. No smoking.

Q. Why should drivers keep their hands dry?
A. Wet or greasy hands are likely to slip on the steering wheel or controls. Similarly, worn shoes can slip from brake or clutch. Trainer says: Speaking of brakes, here is a safety rule not always observed. Never drive your truck up to anyone who is standing in front of a bench, wall or any fixed object. If your breaks fail to stop you in time, you know what the result would be.

Key Points to Follow When Driving, Sheet G (Issued at end of third session)

32. Keep feet off clutch unless changing gears or stopping. Riding or slipping clutch to regulate speed is hard on clutch plate and discs.
33. Sound horn at crossings. A few short blasts are better than one long one.
34. Take it easy where it is wet or greasy. Report these conditions to your foreman or safety representative for correction.
35. When turning, watch rear end swing of truck.
36. Never hurry if it means damaging materials. Regulate speed according to driving conditions and type of load.
37. Do not stop a descending load suddenly. This disrupts the load and is hard on entire truck.
38. Shut off motor when refuelling. No smoking around fuelling points.
39. Keep your hands dry. Wear safe, adequate shoes. Wet hands can slip on wheel or controls. Worn shoes slip easily off clutch or brake.
40. Avoid travelling too close to edges of gangways. Allow a safe clearance between truck and workmen or machines along gangway.
41. Never drive up to anyone who is standing in front of a bench, wall or any fixed object. If truck failed to stop in time, he would be pinned.

EXAMINATION PAPER

Adminstration

1. The purpose of this examination is to find out if the trainee has absorbed the information presented in training. It is not the purpose of the examination to determine if an individual has potential truck driving ability.
2. The examination should be administered in a quiet room, free from distractions.
3. Be sure each trainee has a pencil and have a few extras on hand.
4. Do not seat the trainees too close to one another.
5. Give each member an examination paper and an answer sheet.
6. Read the general directions aloud while trainees read to themselves.
7. Have them write their names, clock numbers and department numbers on the answer sheet.
8. Explain that they are to circle the correct answer on the answer sheet. Only one answer to each item (stress this).
9. Tell the trainees to read carefully the directions preceding each part of the test before doing that part.
10. Tell the group that if anyone has a question after test starts they should raise their hand.
11. When everyone understands what is to be done, let the examination proceed.

Scoring

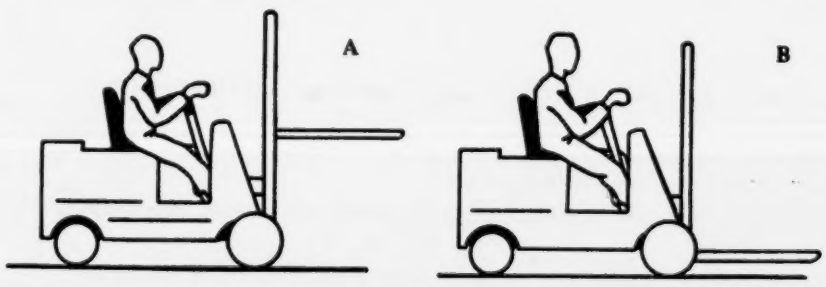
The score is the number of correct answers minus half of the incorrect answers. Any question not answered is considered wrong. Do not give credit for any item where more than one answer is given.

Example–Number correct	.. ..	18
Number incorrect	.. ..	6
Half incorrect	.. ..	3
Score	.. ..	15

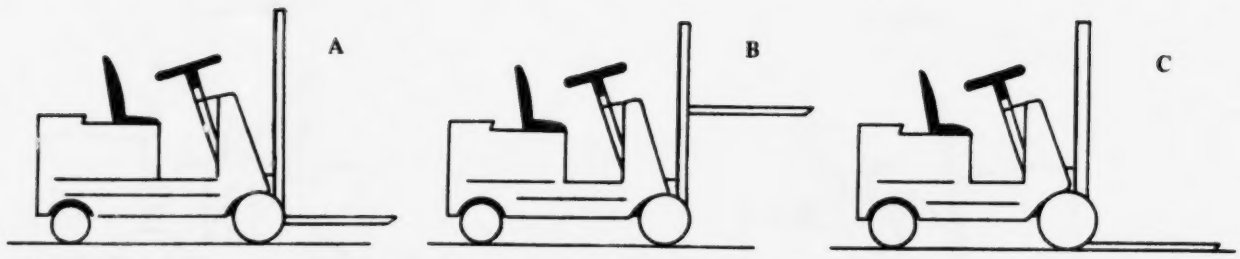
A score of 15 may be used as an arbitrary passing mark. This allows the trainee six incorrect answers (a grade of 75%).

Examination Questions

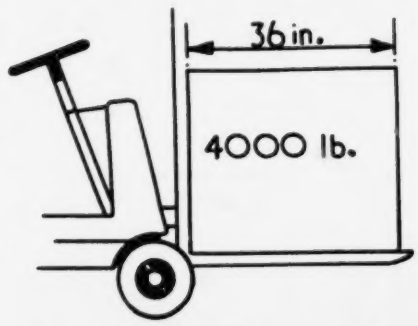
Consider carefully the illustrations. Then answer the questions posed in the captions by circling the letter on the answer sheet which corresponds to the letter by the side of the illustration that you consider to be correct.



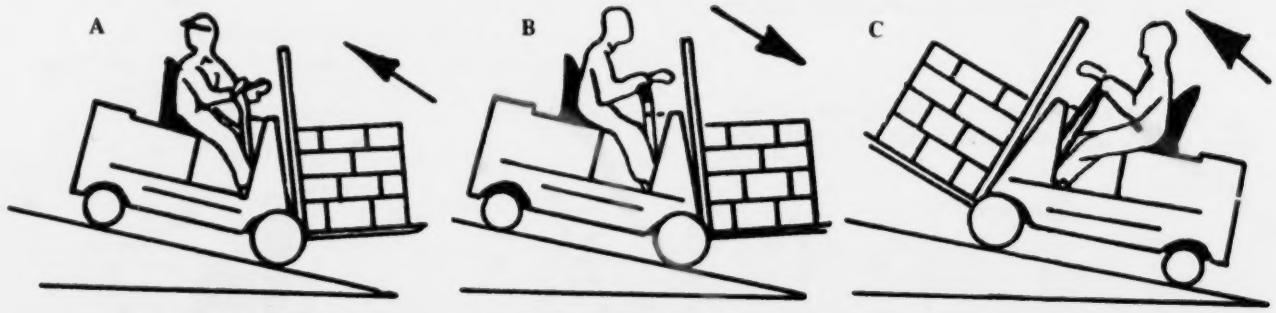
–Question 1. These two trucks are in motion. Which driver is following safe practice?



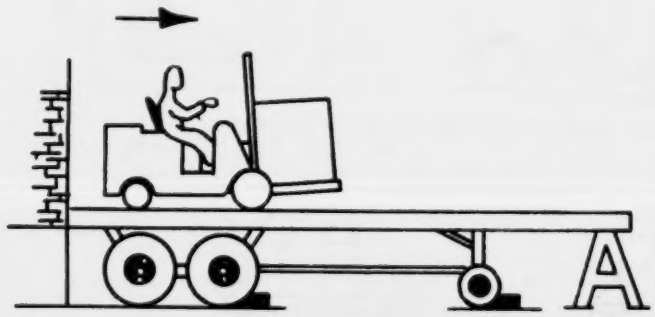
–Question 2. These three trucks are parked. Which one is parked correctly?



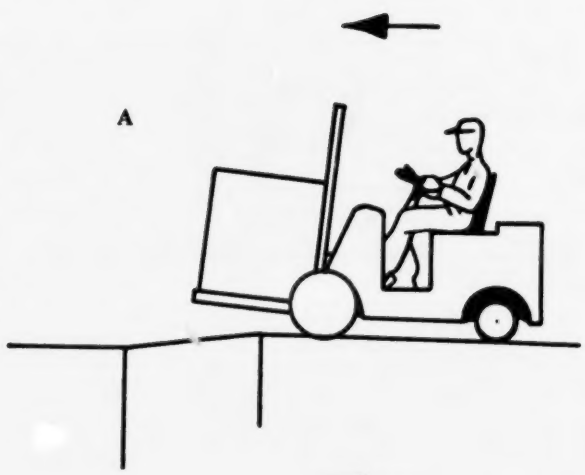
–Question 3. This truck has a rated capacity of 4,000 lb. at 15 in. load centre. Is this load within the truck capacity? A=Yes; B=No.



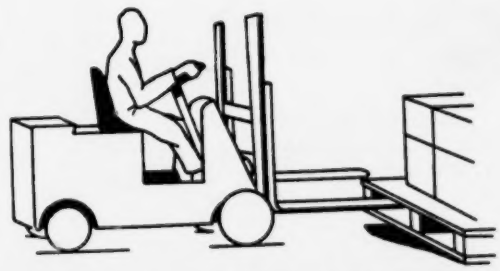
–Question 4. The arrows show the direction of travel. Which driver is travelling the ramp correctly?



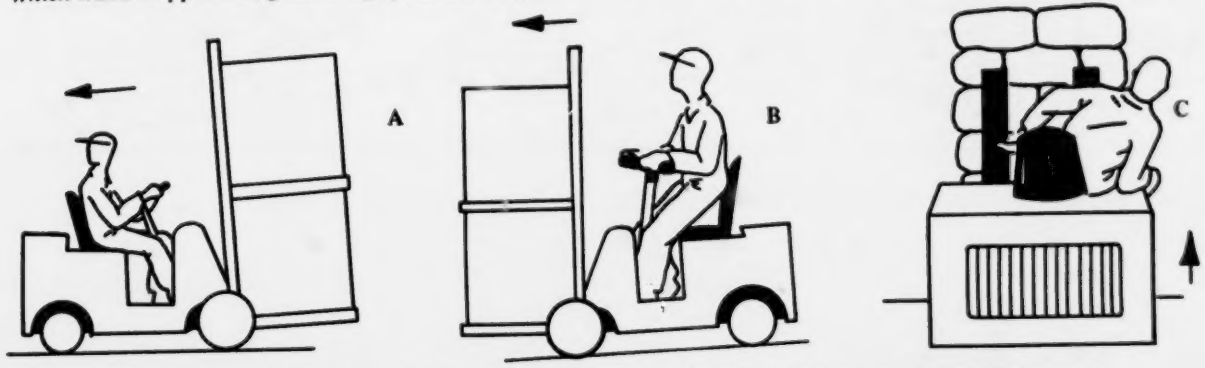
–Question 5. The lift truck is loading onto the trailer. Which of the following applies to this illustration? (a) someone should be steadying the load; (b) the lift truck should not be on the trailer; (c) lift truck should be backing onto trailer.



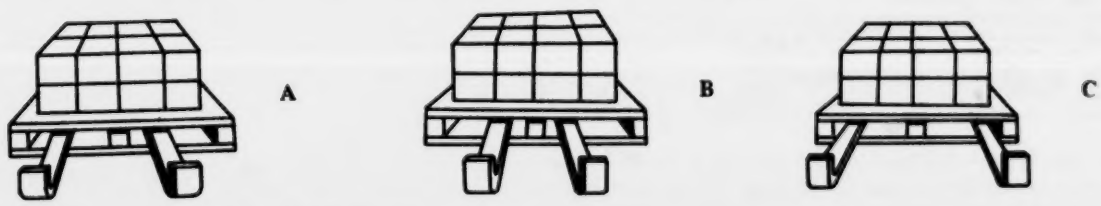
–Question 6. The arrows show the direction of travel. Which truck is approaching the bridge plate correctly?



–Question 7. The driver has raised one corner of the pallet with one fork and is dragging it backwards. The main reason why this is wrong is (a) it damages the pallets; (b) the load may spill; (c) it weakens or cracks the forks.

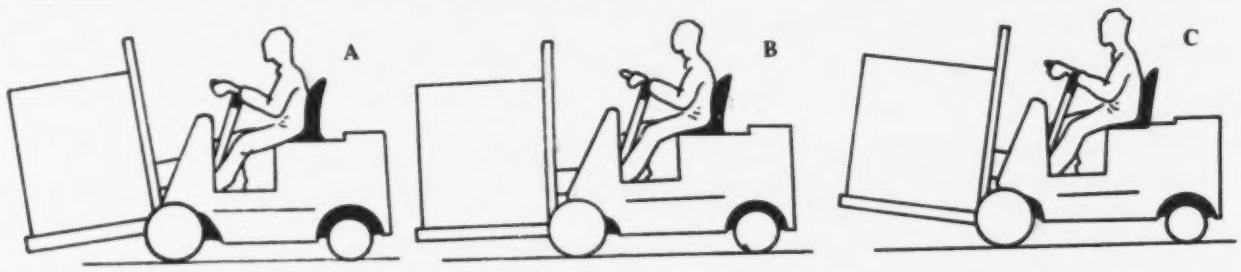


–Question 8. Arrows show direction of travel along gangway. Which driver is following safe practice?



–Question 9. Which pair of forks is properly spaced?

–Question 10. Which truck has the most weight on the rear wheels?



–Question 11. Which driver is carrying the load correctly?

READ THE FOLLOWING STATEMENTS CAREFULLY. SELECT THE CORRECT ANSWER FOR EACH STATEMENT. CIRCLE THE LETTER ON THE ANSWER SHEET THAT REPRESENTS THE CORRECT ANSWER.

Question 12.
If you start to raise a load and it seems to be too heavy for your truck, you should:
(a) for safety's sake have someone stand on the rear of the truck to hold it down
(b) arrange for a heavier truck to do the job
(c) pick the load up slowly, travel carefully, and watch load very closely.

Question 13.
The correct way to line the forks up to enter a pallet is:
(a) line up the forks by eye then run them into the pallet slowly
(b) run the forks slowly in by working the clutch pedal in and out
(c) first touch the load gently with the forks, than back off, line them up and run them in.

Question 14.
If mechanical trouble develops in the truck during the shift, the driver should:
(a) park truck immediately and try to get another truck to finish the shift
(b) report it to an authorised person right away
(c) make the truck last until the end of the shift if possible
(d) find out what is wrong and try to fix it himself to keep the truck operating.

Question 15.
When driving behind another truck going the same way, you should allow at least:
(a) two truck lengths
(b) one truck length
(c) three truck lengths
(d) four truck lengths.

Question 16.
If a driver sees a small obstruction (such as a block of wood) in the gangway, he should:
(a) report it to the foreman so that he can have it removed
(b) reduce speed and steer truck round obstruction
(c) get off the truck and remove it.

Question 17.
If a driver notices that the brake pedal feels "mushy" when he is driving, he should:
(a) pump the brake pedal up and down every time he stops during the shift
(b) report it right away
(c) allow more room in which to stop
(d) warn the next driver to be careful when stopping
(e) drive extra slowly.

Question 18.
Which of the following is the best way to approach a loaded pallet?
(a) manoeuvre several times to be sure the truck is lined up right
(b) drive up to it slowly, smoothly and deliberately
(c) stop about six feet from the load then inch in by working the clutch in and out.

Question 19.
As far as speed is concerned, the driver should:
(a) regulate speed according to driving conditions, and the type of load
(b) regulate speed to keep up with the work to be done
(c) always drive slowly.

READ EACH OF THE FOLLOWING STATEMENTS CAREFULLY, IF YOU THINK THE STATEMENT IS TRUE, CIRCLE THE 'T' ON THE ANSWER SHEET. IF YOU THINK THE STATEMENT IS FALSE, CIRCLE THE 'F' ON THE ANSWER SHEET.

Question 20.
The driver should generally drive close to the left hand edge of gangways.

Question 21.
It is good practice to raise a mechanic on a pallet that is in good condition, provided he is instructed to keep away from uprights.

Question 22.
It is in order to reinforce small weak spots in vehicle floors with a steel plate.

Question 23.
If a load sticks on a power truck it is in order to reach through the uprights to loosen it.

Question 24.
When going through an intersection, one long blast on the horn is better than several short ones.

Examination Paper–Answer Sheet H.

Name..... Dept.....Clock No.....

(Draw a circle round what you consider to be the correct answer)

Question	Answer	Question	Answer
1.	A, B, C	13.	A, B, C
2.	A, B, C	14.	A, B, C, D
3.	A, B	15.	A, B, C, D
4.	A, B, C	16.	A, B, C
5.	A, B, C	17.	A, B, C, D, E
6.	A, B, C	18.	A, B, C
7.	A, B, C	19.	A, B, C
8.	A, B, C	20.	T, F
9.	A, B, C	21.	T, F
10.	A, B, C	22.	T, F
11.	A, B, C	23.	T, F
12.	A, B, C	24.	T, F

Number correct..... Number wrong.....

Half No. wrong (drop fraction)..... **Score**.....

Practical Tests, Sheet X

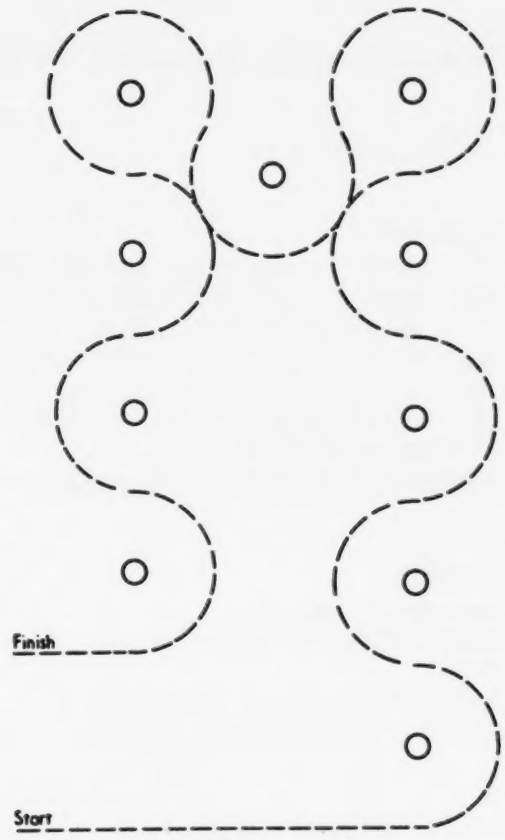
Name: Check No: Dept:

Date of test: Type of truck used:

Test	Key points which driver should observe	poss. marks	marks gained
1 Give a verbal account of what you do when you start to use your truck at the beginning of the shift.	Remove from charge–switch off main and remove plug (electric only).	2	
	Test brakes–forward and reverse.	2	
	Test hoist–without load.	1	
	Test traction–forward and reverse.	2	
	Check for any loose parts and report.	3	

2.		
Test for		
(a) braking	Application and position of brakes	5
(b) reversing	Motor at rest before reversing	5
3.		
Picking up and	Appreciation of working area.	2
putting down	Approach to pallet.	1
pallet from	Forks–near floor and correct spread.	2
floor.	"Snug" under–tilt–raise	3
	Steady lowering.	1
	Withdrawal of forks.	1
4.		
Picking up	Appreciation of working area.	2
pallet from	Approaches.	2
stack and	Forks–near floor and correct spread.	2
placing on	Distance before raising.	2
new stack.	Distance before lowering.	2
	Raising–"snug" under–tilt–raise.	3
	Method of moving between stacks.	1
	Withdrawal	1
5.		
Removing a	Appreciation of working area.	2
pallet from	Forks spread correctly.	1
centre of	Approaches.	3
stack.	Distance from stack before raising.	3
	"Snug" under–tilt–raise	7
	Distance from stack before lowering	3
	Disposal of unwanted pallets (clear of gangway–no obstruction)	2
	Withdrawal	2
	Movement away with selected pallet	2
6.		
Obstacle Course (see below).		
1st. run–Empty truck		3
2nd. run–Truck with loaded pallet		6
3rd. run–Truck with loaded pallet reverse direction		6
Distances	Approach to narrow passages, 6 ins. clearance each side without slowing down (once)	5
Cornering	Allowing for swing of load–not cutting corners	5
Loads	Appreciation of weights (3 attempts)	5
Examiners (1)..... (2).....		100

Safety officer.....



– Track layout of fork lift truck training course. The distances between obstacles, and between obstacles and the edge of the test ground, is five feet.

PART C–N.F.C.I. SAFETY CODE

BEFORE driving off . . .

1.
DO NOT operate any form of industrial truck unless you are COMPETENT in its uses, have been authorised, can find each control quickly and fully understand its purpose.

2.
As a DAILY ROUTINE check . . .

(i) tyres and pressures (remove grit, oil, scrap metal, etc.)
(ii) oil and water levels
(iii) brakes
(iv) batteries
(v) warning devices–horns or bells
(vi) controllers on electric trucks (report excessive arcing)
(vii) forks
(viii) chains, cables and limit switches, where fitted
(ix) transmission and steering mechanisms.

REPORT ANYTHING WRONG . . . immediately.

3.
Ensure that any gear lever or direction selector is IN NEUTRAL before starting up.

4.
SIT within the limits of the truck bodywork and away from any lifting masts.

5.
Do not OVERLOAD. If a load looks UNSAFE or UNSTABLE–report it BEFORE attempting to move it.

ON THE MOVE . . .

6.
In general . . .
(i) STUDY the operating area FIRST, and drive accordingly.
(ii) Always be CAUTIOUS and ALERT. Travel at a SAFE SPEED for the conditions and within any prescribed SPEED LIMIT.
(iii) Know the approved CARRYING HEIGHTS for forks, scoops, buckets,etc.–and keep to them.
(iv) Make sure the floor or any bridge plates are secure and will take the weight–NEVER RISK IT.
(v) Sudden changes in LIGHT INTENSITY (e.g. entering a building from bright sunlight) are a HAZARD. Drive accordingly.
REMEMBER–a valuable truck, a valuable load and invaluable life and limb depend upon YOUR CARE.

7.
AVOID . . .
rapid ACCELERATION
sharp CORNERING (allow for truck tail swing and remember loads may project beyond the toe of any forks)
sudden STOPS (except in emergency).
The truck may do one thing–the load . . . another!

8.
SOUND YOUR HORN (preferably several short blasts) approaching intersections or hazards, and slow down or stop. Watch out for PEDESTRIANS. Be sure of adequate OVERHEAD CLEARANCE (from wires, gable ends and projections). Observe warning NOTICES.

9.
NEVER drive up to anyone standing in front of a machine, wall or other fixture. Never give LIFTS to passengers.

10.
Face the DIRECTION OF TRAVEL and keep a SAFE DISTANCE (normally three truck lengths) from other trucks.
If your forward view is obscured by a bulky load–drive in reverse.

11.
Do not drive over objects on the floor, avoid holes. Steering wheel snap on certain trucks can break your wrist. Cross railway lines diagonally and slowly.

12.
On INCLINES . . .

(i) Go slowly DOWNHILL. Drive with the LOAD BEHIND–i.e. in reverse on certain trucks. On dumpers . . . bucket behind.
(ii) UPHILL . . . Drive with the LOAD in FRONT. Dumpers . . . travel bucket first.
(iii) NEVER ELEVATE loads.
(iv) On forklifts tilt the forks backwards and raise only enough to clear the road surface.
(v) AVOID PARKING–but if you must, apply the brakes effectively and chock the wheels.

13.
LEAVING the vehicle–ensure . . .
You are causing no OBSTRUCTION to passage or equipment, etc. (particularly EMERGENCY equipment); HANDBRAKE is holding (wheels chocked on incline); ENGINE switched off; KEY withdrawn; TRANSMISSION in neutral (and any locking device or safety catch applied); forks, buckets or scoops FULLY LOWERED.
THEN–the vehicle is safe: no unauthorised person can move it; exhaust fumes and gases are minimised.

HANDLING LOADS

14.
SPREAD forks to suit load width. Forks too close create dangerous loads. Travel with fork loads against the carriage and lifting mast tilted back.

15.
FORK LIFTS
(i) GENERALLY . . . approach load or stacking point 'square on'. Stop short of the stacking point. Lift the load–on BACKWARD TILT–clear of the stack. Move slowly into position. Take CARE not to butt adjacent loads. On VERTICAL TILT–lower slowly and place securely. Lower slightly and withdraw forks–reversing out and using FORWARD TILT if necessary to disengage. Move off with backward tilt and forks just above floor level.
Do NOT LIFT or LOWER whilst the truck is moving.
(ii) If fork toes project beyond the load–be sure they are clear. Never create an UNSTABLE stack or stack beyond a SAFE HEIGHT.
(iii) Operate within your truck's LIFTING CAPACITY. Never try to increase it by allowing work-mates to act as additional rear end ballast.

16.
BEFORE tipping or unloading–be sure the area is CLEAR of people or obstructions.

17. Allow NO-ONE UNDER elevated forks, scoops or buckets–whether loaded or not. Set a good example yourself. When loading dumpers under an excavator–leave the cab.

LOOK AFTER YOUR VEHICLE BUT . . .

18.
Adjust no equipment unless authorised to do so. Do not use a naked flame for inspection. Familiarise yourself with the FIRE DRILL.

19.
When REFUELLING–stop the engine, fill, clean off spilt fuel and replace cap before restarting.
BEWARE of radiator pressure caps on hot engines. Keep your vehicle clean–and REPORT ALL DEFECTS at once.

FINALLY

20. Skilful drivers are SAFE drivers. Take pride in joining their number. If an accident, however trivial, does occur–REPORT IT to the proper authority AT ONCE.

Acknowledgement slip

TO: The Works Manager

I acknowledge that I have received a copy of the "Safety Code for drivers of industrial trucks", which I have read and understood.

Date..... Signed.....

Specimen Driving Certificate

Driving Certificate

This is to certify that

.....

Clock No..... is authorised to drive internal transport vehicles in the groups indicated below.

A	FORK TRUCKS
B	DUMPERS
C	DIGGERS
D	PLATFORM TRUCKS

Signed for the Company.....

Driver's Signature.....

Date.....

Rules

1. Before using vehicle you must test the brakes and steering.
2. Before using, check fuel, oil, water and tyres.
3. Drive slowly (Max. 5 m.p.h.)
4. NEVER carry passengers.
5. Ensure a clear and unobstructed vision.
6. NEVER hand over your vehicle to unauthorised persons.

Note:
Cleanliness of vehicles is the responsibility of the driver.

Supplementary References

Film strips are available from:

The Industrial Society,
Robert Hyde House,
48, Bryanston Square,
London, W.1.

The Royal Society for the Prevention of Accidents,
Terminal House,
Grosvenor Gardens,
London, S.W.1.

Rank Film Library,
1, Aintree Road,
Perivale,
Greenford,
Middlesex.

The Central Film Library,
Government Building,
Bromyard Avenue,
Acton,
London, W.3.

ERIC Clearinghouse
JUN 6 1970
on Adult Education

Attention is drawn to a recent Royal Society for the Prevention of Accidents publication—Training Manual for Power Truck Operators—available from the Society. Price to non-members 15/-, price to members 10/-.